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(54) Title: METHODS OF RAPID DETECTION AND IDENTIFICATION OF BIOAGENTS USING microRNA

(57) Abstract: Methods for detecting and identifying unknown bioagents, including bacteria, viruses and the like, by a combination of microRNA containing nucleic acid amplification and molecular weight determination using primers which hybridize to conserved sequence regions of microRNA containing nucleic acids derived from a bioagent and which bracket variable sequence regions that uniquely identify the bioagent. The result is a "base composition signature" (BCS) or molecular mass which is then matched against a database of base composition signatures or molecular masses, by which the species of the bioagent is identified.



WO 2005/033271 A3

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/28869

## A. CLASSIFICATION OF SUBJECT MATTER

IPC: C12Q 1/68( 2006.01);C12P 19/34( 2006.01)

USPC: 435/6,91.2

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/6, 91.2

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	GJOEN et al. Specific detection of coxsackie viruses A by the polymerase chain reaction. Clinical and Diagnostic Virology. 1997, Vol. 8, pages 183-188, see entire document.	1-5, 8, 9, 18, 26, 27 ----- 6, 7, 10-17, 19-25
X --- Y	FUJIOKA et al. Analysis of enterovirus genotypes using single strand conformation polymorphisms of polymerase chain reaction products. J. Virol. Methods. 1995, Vol. 51, pages 253-258, see entire document.	1-5, 8, 9, 18, 24-27 ----- 6, 7, 10-17, 19-23
Y	MUDDIMAN et al. Characterization of PCR products from Bacilli using electrospray ionization FTICR Mass spectrometry. Analytical Chemistry. 01 November 1996, Vol. 68, No. 21, pages 3705-3712, see entire document.	1-27



Further documents are listed in the continuation of Box C.



See patent family annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
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International application No.  
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## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	LEBEDEV et al. Oligonucleotides containing 2-aminoadenine and 5-methylcytosine are more effective as primers for PCR amplification than their nonmodified counterparts. Genetic Analysis: Biomolecular engineering. 1996, Vol. 13, pages 15-21, see entire document.	1-27
Y	KILPATRICK et al. Group-Specific Identification of polioviruses by PCR using primers containing mixed-base or deoxyinosine residues at positions of codon degeneracy. J. Clin. Microbiol. December 1996, Vol. 34, No. 12, pages 2990-2996, see entire document.	1-27
Y	WO 98/20166 A2 (SEQUENOM et al) 14 May 1998 (14.05.1998), see entire document.	1-27

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Continuation of B. FIELDS SEARCHED Item 3:  
EAST, STN  
search terms: miRNA, siRNA, PCR, LCR, mass spectrometry, MALDI, TOF